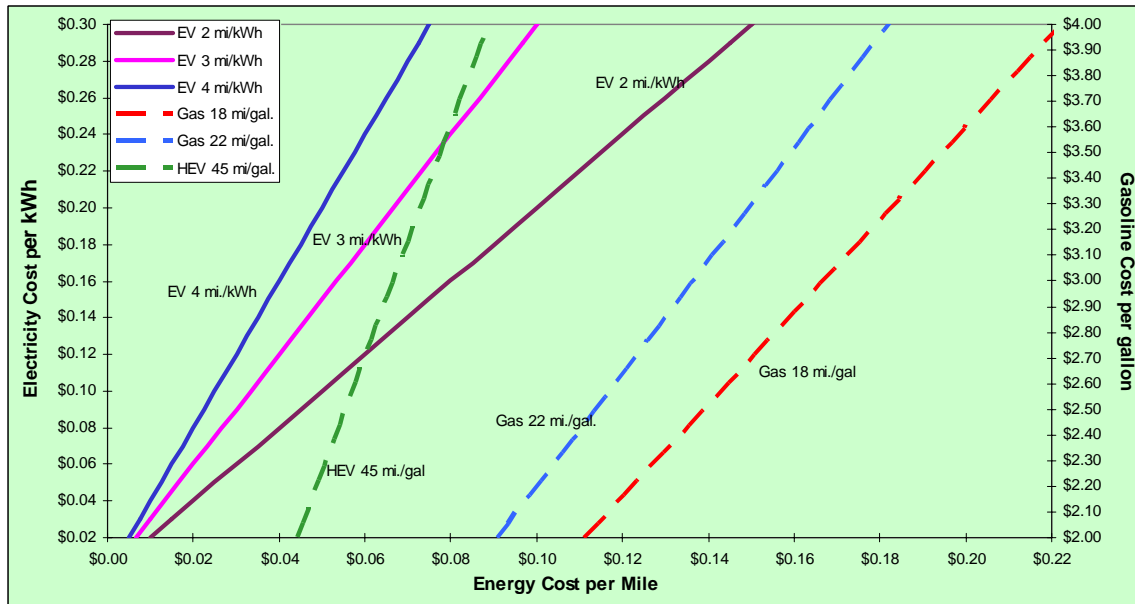


Comparing Energy Costs per Mile for Electric and Gasoline-Fueled Vehicles

The fuel cost of driving an electric vehicle depends on the cost of electricity per kilowatt-hour (kWh) and the energy efficiency of the vehicle. For example, to determine the energy cost per mile of an electric vehicle, select the location on the left axis (Electricity Cost per kWh) at 9 cents in the graph below. Draw a horizontal line to the right until you bisect the EV 3 mi/kWh line. Now draw a vertical line down until you bisect the bottom axis (Energy Cost per Mile). This tells you that the fuel for an electric vehicle with an energy efficiency of 3 miles per kWh costs about 3.0 cents per mile when electricity costs 9 cents per kWh.



The national average cost for electricity in the U.S. is about 7.5 cents per kWh, while the average residential rate is about 8.9 cents per kWh. Some electric utilities have historically had electric vehicle charging rates that vary by time of use, day, and season. These rates have ranged from 3 cents to as high as 50 cents per kWh. Older electric vehicles have energy efficiencies of about 2 miles per kWh. Some electric vehicles, such as the EV1 from General Motors, had energy efficiencies of over 6 miles per kWh.

To determine the energy cost per mile of a gasoline vehicle, pick the location on the right axis (Gasoline Cost per gallon) at \$2.50. Draw a horizontal line to the left until you bisect the Gas 18 mi/gal line. Now draw a vertical line down until you bisect the bottom axis (Energy Cost per Mile). This tells you that the fuel for a gasoline vehicle with an energy efficiency of 18 miles per gallon costs about 13.9 cents per mile when gasoline costs \$2.50 per gallon. The mileage for commercial fleet vehicles such as light-duty pickups ranges from below 17 miles per gallon to generally about 22 miles per gallon.

The energy cost per mile is also included for a hybrid electric vehicle (HEV) with an energy efficiency of 45 miles per gallon, as these types of vehicles are increasingly being used. If \$2.50 per gallon of gasoline is also assumed for the HEV that gets 45 mpg, the energy cost per mile would be 5.5 cents per mile.